2006/2007 STATUS REPORT ON MITIGATION ACTIVITIES FOR CWA 404 PERMITS CONDUCTED BY TUCSON AUDUBON SOCIETY
September 2007

1. NORTH SIMPSON PROJECT SITE – HABITAT MITIGATION ACTIVITIES

The Tucson Audubon Society's Santa Cruz River Habitat Project—North Simpson Site is located on land owned by the City of Tucson in northern Avra Valley, Pima County, Arizona in Township 10E, Range 11S, Section 15. The 640-acre area where restoration is concentrated is a part of part of a parcel totaling 1700 acres owned by the City of Tucson north and south of the Santa Cruz River, and is accessed by Tucson Audubon through a Right of Entry agreement that extends through the year 2100.

The habitat at the site is categorized as Important Riparian Area by Pima County. The site is bisected by a 1.5-mile reach of the Santa Cruz River. Effluent released from the Pima County Wastewater Treatment Plants at Roger and Ina Roads flows downstream 18 miles to the North Simpson Site and supports hydroriparian vegetation along the river corridor.

The goal of restoration work at the North Simpson Site is to preserve, enhance and diversify habitat while stabilizing disturbed land. Restoration activities at the site have been funded by several entities including in-lieu mitigation funds, Arizona Water Protection Fund grants, and US Fish and Wildlife grants.

Activity acreages summarized in the table below apply only to the activities conducted in areas of the site earmarked for in-lieu mitigation activities. Restoration activities funded through in-lieu mitigation funds and completed to date are as follows:

Restoration Activity	Acreage completed prior to FY 06/07	Acreage completed in FY 06/07	TOTAL ACREAGE TO DATE	Additional acreage planned for FY 07/08
Planting of native seedlings in water harvesting basins and depressions and cottonwood and willow poles (approximately 100 plants per acre)	75	2	77	25
Distribution of native seed using imprinting technique and hand distribution (12 – 15 lbs per acres of native seed)	140	2	142	20
Concentrated erosion control	2	--	2	--

Additional activities include irrigation, maintenance and replanting as needed in existing and new planting areas, adding protection from small mammals to plants in some areas, removal of nonnative invasive plant species throughout planting and seeding areas, and avian and photographic monitoring.

Flooding on July 31, 2006 resulted in breaches of some earthen river dikes. Project personnel have worked with City of Tucson land managers to minimize disturbance during repair of the dikes. They have also worked with the City to restore perimeter fencing in areas where it was disturbed.

Evaluation of restoration efforts to date
Since the commencement of planting and seeding activities in early 2001, some trees, shrubs and grasses have recolonized the North Simpson site throughout the in-lieu mitigation area. Plants we have

planted have contributed to this. Also contributing are plants that have sprouted from seeds we have distributed and seeds produced by newly established vegetation. Water harvesting basins support both installed seedlings, and native plants that "volunteer" in the favorable microclimates created in the basins.

A robust cottonwood/willow gallery forest has developed with substantial increases in tree height and density, as a result of fencing to exclude cattle. Scouring river flows contribute by inducing seed germination. Restoration pole planting has added to the numbers of cottonwoods and willows in the riverside forest.

Bird surveys continue to document the diversity and number of birds using habitat at the site. Yellow-billed cuckoo (*Coccyzus americanus*), a candidate species for listing as threatened or endangered under the Endangered Species Act, were detected in the Goodding's willow canopy along the river briefly in 2002 and then consistently in the summers of 2004, 2005, 2006 and 2007.

2. MARTIN FARM PROJECT SITE—HABITAT MITIGATION ACTIVITIES

The Martin Farm Restoration Site is located on land owned by the City of Tucson (COT) in northern Avra Valley, Pima County, Arizona. Thirty acres of riparian area are available for restoration at the site along the south side of the Santa Cruz River (Figure 2). The site is located in Township 11S, Range 10E, Section 24, immediately west of the incorporated area of the Town of Marana along the Santa Cruz River.

A scope of work was created for habitat restoration at the Martin Farm site. Permits were acquired for the site including right-of-entry and water use agreements with the City of Tucson, a Pima County Floodplain Use Permit, and archaeological clearance. We are coordinating with the managers of the land to have the site fenced.

In the 2006-07 fiscal year a large irrigation system was designed and installed by Earthwise, a subcontractor. Over 3,500 trees, shrubs and grasses were planted. Over 200 pounds of native seed were sown at the site.

On the southwest portion of the site on bank overlooking the floodplain, scores of planting microbasins were installed both to provide harvested rainwater for plants, and to reduce water flowing the on the eroding slope down to the floodplain. Extensive vegetative gabions were installed on this slope as well, to mitigate erosion.

Monitoring protocols have been set up and baseline data have been collected. Monitoring consists of avian point counts, photo monitoring, and measurement of plant survival and growth.

Restoration Activity	Acreage completed during FY 06/07	TOTAL ACREAGE TO DATE	Additional acreage planned for FY 07/08
Planting of native seedlings in water harvesting basins and depressions (over 100 plants per acre)	27	27	3
Distribution of native seed using imprinting technique and hand distribution (12 – 15 lbs per acres of native seed)	27	27	3
Concentrated erosion control	2.1	2.1	--

Evaluation of restoration efforts to date

As of the baseline plant survival monitoring in April 2007, the vast majority of restoration plantings were alive. Plant stress and predation was highest in the small planting area above the floodplain in the southwest corner of the site. The main upper floodplain planting area was doing extremely well. Summer

flooding since the baseline data collection has probably affected some of the plants in the lowest floodplain area (the "hydroriparian area"). Data collection in October 2007 will show six-month survival and growth rates. Casual observations made by the field crew suggest impressive survival and growth rates in the large, upper floodplain area of the site. This area received flood flows in July 2006 so soil nutrients may have improved at that time.

High labor inputs have been necessary to maintain the irrigation system, which requires drip emitter maintenance and flushing of main lines due to buildup of sediments and organic materials. Irrigation was suspended for much of August due to regular summer rains and flooding damage to a main PVC distribution pipe. Soil moisture seemed to stay high during this period and little plant stress was observed.

It is too early to see long-term results via bird surveys or photo monitoring. Both are ongoing and may show significant progress within a few years.

3. COCHIE SPRING PROJECT SITE, TORTOLITA MOUNTAINS

The Cochie Spring Restoration Project site is located in southern Pinal County on Pima County-owned land, and is managed by Pima County Natural Resources Parks & Recreation as part of Tortolita Mountain Park. The site is located in Township 10S, Range 12E, Section 35, at the western edge of the Tortolita Mountains and approximately 0.75 miles north of the Pima/Pinal County line. The current project site constitutes approximately 12 acres of the 200 acres owned by Pima County.

Cochie Spring augments the ephemeral flows collected in the Cochie Creek watershed during seasonal rain events. The spring, as part of a historical range homestead, was encased in a concrete sump to serve as a "well."

The goal of restoration work at the Cochie Spring site is to reverse degradation caused by grazing and erosion and to return normal vegetation to disturbed areas. Restoration activities are focused in and around Cochie Wash. Due to archaeological sensitivity, active planting and erosion control are not being conducted around existing structures, built up terraces, and old corral land.

Activities at the site commenced in fall of 2004. Work completed before the current fiscal year includes:

- Completion of the Cultural Resources Survey of the site.
- Construction of wildlife fencing around the 12 acre mitigation area
- Clean up of accumulated recent debris from human occupation and old fencing throughout the fenced area, under the supervision of archaeologists
- Planting and localized erosion control in 3.3 acres of the site specifically delineated for in-lieu mitigation planting
- Construction of irrigation system
- On-going irrigation of plantings
- Monitoring and repairs to irrigation system when needed
- Avian monitoring, photo monitoring, and vegetation survival monitoring
- Replacement planting was conducted following the first round of follow-up plant monitoring, to replace plants that had not survived

Activities during the 2006-07 fiscal year include:

- Irrigation of plantings through spring of 2007, when irrigation ceased
- Fence inspection
- Avian monitoring, photo monitoring, and vegetation survival monitoring

Evaluation of restoration efforts to date

Restoration efforts to date have resulted in a spontaneous rebound of native grasses and forbs as a result of cows being fenced out of the site. Six species of native plants were planted along Cochie Wash adjacent to the spring and settlement area. A total of about 340 plants were planted.

To monitor the survival of plantings at the site, baseline plant monitoring and three further semiannual rounds of plant monitoring have been completed. Approximately 10 individuals of 7 species have been monitored. As of April 2006 survival has ranged from 30% to 80%, with overall survival of the monitored sample at 56%.

It is too early to see significant data on changes in bird populations. Bird monitoring for avian diversity and abundance continues. Monitoring was done in April and July of 2005, April and August 2006, and August of 2007. Photo monitoring was done semiannually from November of 2004 to October of 2006. Additional photo monitoring will be done annually in the month of October.

Tucson Audubon Society Mitigation Account
Fiscal Year 2006/07: October 1, 2006 to September 30, 2007

	Mitigation Projects			
	North Simpson Site: habitat mitigation	Cochie Spring: habitat mitigation	Martin Farm: habitat mitigation	**TOTAL FOR ALL PROJECT SITES**
FY 06/07 BEGINNING BALANCE (OCTOBER 1, 2006)	$85,968.41	$51,569.94	$417,697.96	**$555,254.31**
TOTAL INCOME FROM ADDITIONAL MIT FUNDS FY 06/07	$324,245.00	$0.00	$0.00	**$324,245.00**
October 23, 2006: Willow Ridge, CPE Development	$22,320.00			
December 4, 2006: Ghost Hollow, MMV Dev.- Phoenix	$5,000.00			
December 20, 2006: Rancho del Rio	$20,880.00			
February 2, 2007: Kolvoord Family Partnership	$3,645.00			
April 16, 2007: Ready Eight, Cottonwood properties	$9,900.00			
March 7, 2007: Diablo Village	$20,250.00			
May 29, 2007: Willow Springs Properties	$204,750.00			
May 29, 2007: Viento (Burris & Martin), Vanderbilt Farms	$37,500.00			
TOTAL EXPENSES FY 06/07	$67,405.03	$5,394.09	$137,364.37	**$210,163.49**
5% overhead allowance for new funds received in FY 06/07	$16,212.25			$16,212.25
Staff labor	$44,004.50	$4,993.50	$84,470.50	$133,468.50
Worker's compensation	$1,088.74	$98.94	$1,786.26	$2,973.94
Contractor labor	$1,756.88		$10,623.00	$12,379.88
Mileage	$2,213.29	$229.17	$3,583.35	$6,025.81
Equipment/ repair/ material/plants/seeds	$191.57	$72.48	$35,187.90	$35,451.95
Equipment rental	$1,359.36		$1,693.36	$3,052.72
Fees			$20.00	$20.00
Electrical service to irrigation pumps	$578.44			$578.44
FY 06/07 INTEREST FROM BANK ACCOUNTS PRORATED TO PROJECTS	$9,088.11	$1,224.09	$7,431.46	**$17,743.66**
ENDING BALANCE FY 06/07 (as of 9/30/07)	$351,914.49	$47,399.94	$287,765.05	**$687,079.48**